Remarks

The Applicants have amended the Specification to correct a minor grammatical error. No new matter has been added. The Applicants have amended Claim 1 to incorporate the subject matter of Claims 4 and 5 as well as portion of Claim 2. Claims 2, 4 and 5 have been cancelled.

The Applicants note with appreciation the withdrawal of all of the previous rejections and acknowledge the new rejection of Claims 1 – 5 under 35 U.S.C. §103 over Sado.

Sado discloses a method for producing a three-dimensionally shaped aromatic imide polymer sheet article. The steps in the Sado method include three-dimensionally shaping a sheet consisting essentially of an aromatic imide polymer and having a second order transition temperature of from 250°C to 400°C and an ultimate elongation of 120% or more determined by a tensile test at a temperature of 100°C by press-stretching at least a portion of the sheet at a temperature of 100°C or more, but not exceeding a temperature of 100°C higher than the second order transition temperature of the sheet to shape a portion of the sheet into a desired concave or convex form, maintaining the resultant shaped sheet article in the concave- or convex-shaped form at a temperature equal to or higher than the second order transition temperature of the sheet and cooling the shaped sheet article to a selected low temperature.

Accordingly, the Applicants agree that Sado discloses a polyimide molding of an aromatic polyimide resin. The Applicants further agree that the molding includes a wall defining an opening at one end and closed at an opposite end and has a depth. The Applicants further agree that Sado disclose a wall thickness of 0.5 mm.

However, there are important differences between Sado and the invention. In that regard, the Applicants note the Examiner's frank acknowledgment that Sado fails to disclose a ratio of depth

to opening of at least 0.7 and a longest major axis of at least 150 mm in length with a depth of at least 0.5 mm. This is an important failure on the part of Sado as it hypothetically applies to the solicited claims. While the Applicants also agree that Sado discloses a particular depth and diameter, namely 50 mm depth and 200 mm diameter, there are no teachings or suggestions provided to those of ordinary skill in the art that would lead such a person to the invention as recited in the solicited claims. To make up for this critical deficiency, the Official Action takes the position that the claimed ranges would be obtainable by virtue of "routine experimentation."

Unfortunately, there are significant differences in the methodology taught by Sado as opposed to the methodology of the invention that would lead one of ordinary skill in the art without knowledge sufficient to motivate such a person to engage in such speculative "routine" experimentation. In particular, by reference to Example 1 of Sado, Sado provides a method wherein an aromatic polyimide sheet was subjected to a draw-forming machine when a portion of the sheet was pressed by a male former in the form of a sphere at a right angle to the plane of the sheet and at a shaping temperature of 300°C to cause the pressed portion of the sheet to be stretched and to form a hemispherical-shaped concavity protruding from the sheet plane. The resulting shaped sheet article was maintained in the shaped form at a temperature of 350°c for 30 seconds and then cooled to room temperature.

In sharp contrast, the methodology employed by the Applicants may also be found in their Example 1, wherein a thermoplastic aromatic polyimide film was fixed to a metallic frame with its periphery being held by the frame and the center portion of the film was heated at 280°C. The film was grounded on a female mold equipped with degassing mechanism and the mold was degassed to attain vacuum forming of the film.

It is clear to those of ordinary skill in the art that there are significant differences in the methodology which would very likely produce films having completely different characteristics, irrespective of selected specific dimensions. For example, the act of causing a surface heated at 300°C, pressed against the sheet and then held against the sheet at a temperature of 350° for 30 seconds would likely result in different sheet characteristics than a method which heats the sheet itself to 280° and the vacuum forms the heated portion of the sheet against a female mold portion. For example, it is well known to those of ordinary skill in the art that applying a heated surface to a material can cause the surface portion of the heated material to have different characteristics than an interior portion of the sheet or the opposed surface. Moreover, maintaining the sheet in a pressed form between the male pressing portion and the female receiving portion can also provide characteristics far different from characteristics caused by vacuum-forming the sheet against the female portion which is not heated. Accordingly, the Applicants respectfully submit that it would be nothing more than speculation that "routine" experimentation as performed in accordance with the methodology of Sado would result in the realization of the claimed ratio, longest major axis and depth.

Moreover, the Applicants respectfully submit that there is nothing in Sado that would cause one of ordinary skill in the art to "routinely" experiment with the ratio, the longest major axis and/or the depth as recited in the solicited claims. Careful scrutiny of the entire Sado disclosure reveals that there is no appreciation for the ratio at all, as an example.

It must be kept in mind that the prior art must provide teachings or suggestions to one of ordinary skill in the art to cause them to go beyond or modify the disclosure at issue. In this case, there are no teachings or suggestions in Sado that would cause one of ordinary skill in the art to make

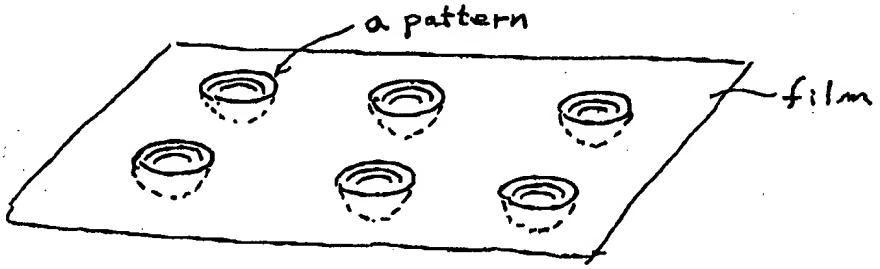
the modifications or "routinely" experiment with the claimed parameters. Sado merely mentions in passing that a shaped sheet article has a concave portion having a particular thickness, a particular depth and a particular diameter. No ranges of such thickness, depth or diameter are provided or suggested and no importance whatsoever is attached to such thickness, depth or diameter. The only real teachings provided are with respect to the thickness of the sheet, not the article, having a thickness range of 5 μm to 10,000 μm. At least in the instance of the sheet, Sado provides some thoughts of a potential range for the sheet. In sharp contrast, there are no teachings or suggestions with respect to the thickness range of the article, the depth of the article and/or the diameter of the article. There is merely a passing reference to the resulting thickness depth and diameter of the one article produced in Example 1.

Accordingly, the Applicants respectfully submit that one of ordinary skill in the art would have no motivation to make hypothetical modifications, i.e., "routinely" experiment with the article (not the sheet) thickness, the article depth and/or the article diameter.

As a consequence, one of ordinary skill in the art would have no reasonable expectation of success even if such a person were to make such modifications. It must be kept in mind that the test of obviousness not only requires teachings or suggestions to make modifications, but a reasonable expectation of success. There simply is no reasonable expectation of success that can be gleaned from Sado because Sado attaches no importance whatsoever to the thickness of the resulting article, its depth or its diameter. Careful scrutiny of the entire Sado disclosure reveals that it is simply devoid in that regard. At best, under the most liberal interpretation of the disclosure of Sado, the Sado disclosure provides the notorious "obvious to try" scenario. Unfortunately, the Court of Appeals for the Federal Circuit long ago established that "obvious to try" is not the appropriate test

of patentability. The result is that Sado is inapplicable to solicited Claims 1 – 5. In any event, Sado shows in Example 1 a shaped polyimide article that transition temperature is 285°C, elongation is 130%, thickness is 0.042 mm, depth is 50 mm and diameter is 200 mm.

However, Sado does not disclose, teach or suggest a plurality of repetitive patterns as shown below.



The Applicants accordingly respectfully request withdrawal of the 35 U.S.C. §103 rejection.

In light of the foregoing, we respectfully submit that the entire Application is now in condition for allowance, which is respectfully requested.

Respectfully submitted,

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